

## **U.S. Environmental Protection Agency - Environmental Response Team (ERT)**

### **Diver Sediment Sampling Procedures**

#### **BACKGROUND**

The San Jacinto River Waste Pit Site history has been documented in several documents prepared for, submitted to, and approved by the EPA. In brief, paper mill wastes were disposed in impoundments about 14 acres in size at the site in the 1960's resulting dioxin and furan contamination in the adjacent waterbody of the San Jacinto River. The impoundments/waste pits are situated on a 20-acre parcel immediately north of Interstate Highway 10 on the west bank of the river.

Pursuant to an EPA-issued Order on Consent (AOC), International Paper Company (IPC) and McGinnes Industrial Maintenance Corporation (MIMC) undertook a Time Critical Removal Action (TCRA). As a central component of that action, IPC and MIMC implemented action to stabilize the waste pits and to install the TCRA Cap. The original 1966 boundaries of the northern impoundments/waste pits and impacted area extend into the current basin of the San Jacinto River, and thus a portion of the cap is underwater in depths extending to a maximum of approximately 16 feet. The TCTA Cap is designed to prevent the migration of dioxins and furans from the historic boundaries of the northern impoundment into the San Jacinto River and its sediments.

#### **METHODOLOGY**

Sediment samples will be collected by U.S. Environmental Protection Agency (EPA) certified scientific divers as specified in U.S. EPA ERT/Scientific, Engineering, Response & Analytical Services (SERAS) SOP 2016 "*Sediment Sampling*" (U.S. EPA 2001) and Sediment Field Sampling Plan April 2010, San Jacinto River Waste Pits Superfund Site (Integral Consulting Inc & Anchor QEA, LLC, 2010).

A diver will assess the sediments at the San Jacinto Waste Pits site using a 4-foot probe (e.g., rebar) looking for areas where armor stone or geotextile material is not observed in the upper 4 feet of the sediment. These locations will be designated with a surface marker buoy. Once one or more potential target areas are located the diver will return to the surface to get sediment sampling equipment. The sediment sampling equipment will consist of a polycarbonate tube (or similar material), sledge hammer (if required) and two plastic end caps.

The diver will descend back to the sample location and the core will be inserted vertically into the sediment to a depth of 2-feet below the top of the sediment surface. Once the core is pushed or driven to the desired depth a plastic end cap will be tightly placed on the top of the sediment core, which minimizes any loss of sediment sample from the bottom of the core tube. The core will be slowly pulled vertically from the sediment, keeping the plastic end cap intact. When the bottom of the core is just above the sediment surface it will be immediately capped. Core-catchers will be used if needed to keep the sediment in the core. The core sample will be handed from the diver to surface personnel on the dive support vessel. The core sample will be labelled with sample location, sample date/time and a directional arrow pointing to the top of the core. Throughout collection and transportation, the core will be maintained in an upright vertical position to minimize disturbance of the sediments in the core.

The cores will be inspected to ensure the sediment is intact and contains a representative sample based on:

- 1) Penetration depth vs. recovery depth exceeding 50%
- 2) Overlying water present in the top of the tube,
- 3) Rock or other obstructions in core catcher that may have obstructed or disturbed sediment entering the core,
- 4) Sediment missing from the bottom section of the core and
- 5) Undisturbed sediment layers in core.

If the core does not meet the above criteria, the deficiencies will be noted and it may not be sampled. EPA and the site contractor will immediately discuss the possible need for resampling the location.

After being transported to the processing area, the cores will be allowed to settle and a small (1/8") hole will be drilled above the sediment/water interface. After the overlying water has been drained the sediment core samples will be laid out horizontally on a clean work surface and two longitudinal cuts will be made to open the core. Once the cores are opened, they will be photographed and inspected for physical characteristics.

Cores will be sectioned into 0.5-foot intervals. Each section will be placed in a dedicated aluminum pan and homogenized with a dedicated stainless-steel spoon until the sediment attains a visually uniform color and texture. The sediment will be transferred to a labeled sample container. Each sample container will be labeled with the sample location and sample time/date. Samples will be maintained and shipped to the laboratory for analysis on wet ice at 4°C.

## REFERENCES

Anchor QEA and Integral Consulting. 2010. Sediment Field Sampling Plan San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS

USEPA. 2001. U.S. EPA ERT SERAS Standard Operating Procedure (SOP) 2016 'Sediment Sampling' Washington, DC. <https://clu-in.org/download/ert/2016-R00.pdf>